Implementing the Relative Rate Index Calculation: A Step-by-Step Approach to Identifying Disproportionate Minority Contact within the Juvenile Justice System.

The materials that follow are intended to provide step by step instructions for completing the initial identification stage for examining Disproportionate Minority Contact within a jurisdiction. The purpose of these instructions is to provide some guidance in the analysis process, both by specifying the steps to take (including data, data definitions, and basic descriptions of the juvenile justice system) and by providing an example to follow using a data tool developed for the purposes of this analysis. The example is one of a real jurisdiction, not selected for any particularly glaring reason, but rather believed to be fairly typical of juvenile justice systems in the country.

As a first step in understanding the example, and the analysis process, we have created a general model of the juvenile justice system (Figure 1). This is seen as a series of case flows between major stages in the justice system, depicted in such a way that we can follow the major components and so that we can record the number of cases passing through each stage during a year. The number of cases is used to compute a rate of occurrence, and those rates are compared between racial / ethnic categories. So, for example, we may calculate an arrest rate for white youth and for Hispanic youth, comparing those two rates to determine the extent to which Hispanic youth may have a higher arrest rate than White youth.

The result of that comparison is a calculation termed the Relative Risk Index (RRI). It must be emphasized that the RRI is designed as a first step in examining Disproportionate Minority Contact. The RRI is used to point to areas for more intensive examination, and to serve as an ongoing set of 'vital signs' or 'early warning system' for the management of the juvenile justice system.

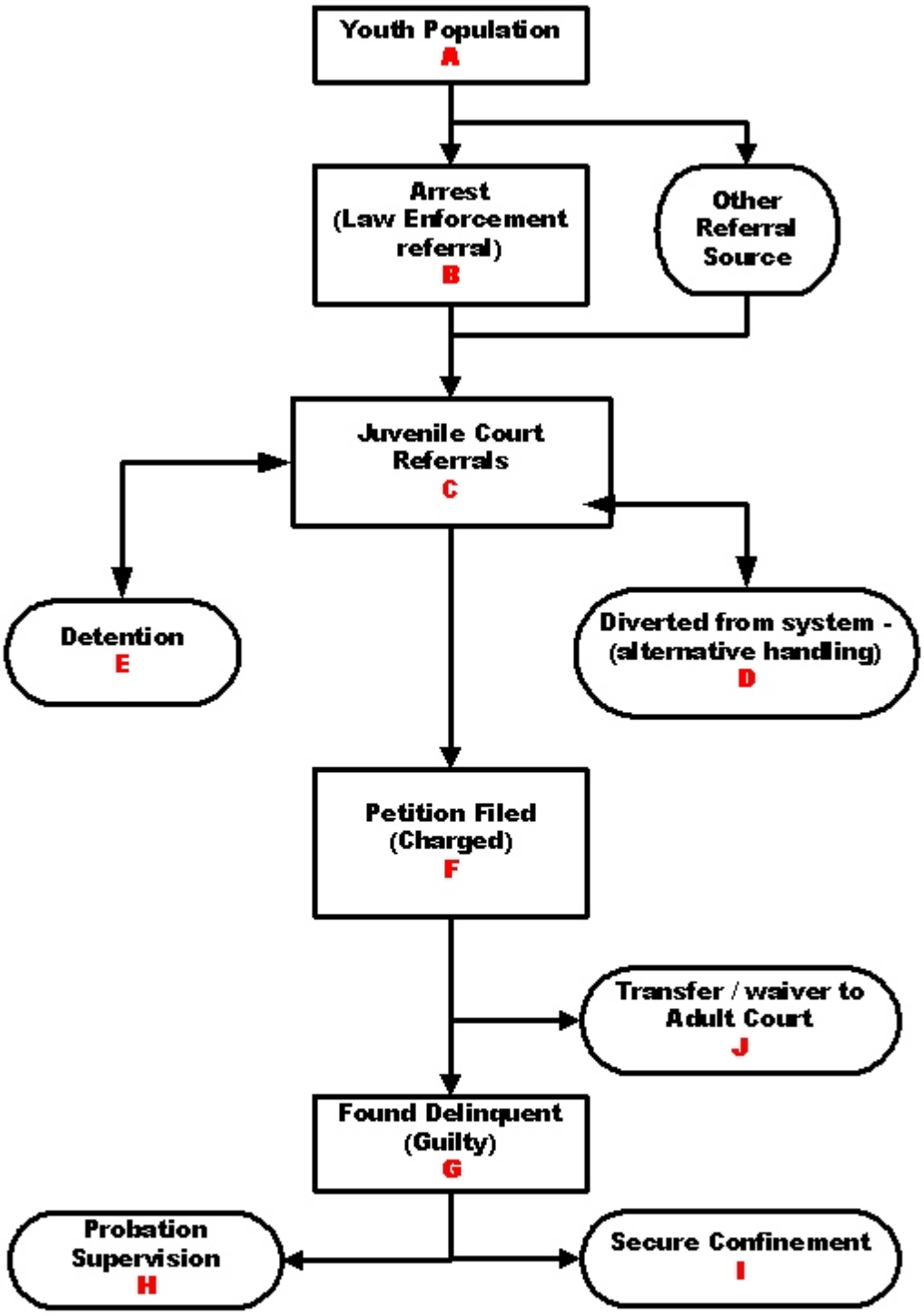

Figure 1.
Relationship of Data Elements for Relative Rate Index calculations

Steps in Calculating the Relative Rate Index

1. **Understand the basic relationship of elements in the juvenile justice system and compare those elements in the State system to the general model in Figure 1.** Figure 1 does NOT show all of the possible pathways that a case involving a juvenile might follow in the juvenile justice system. Rather it is designed to show the **major** flows and the **major** points at which data is likely to be available. Since much of the RRI model is based on the relationship of these elements, it should be confirmed as generally fitting the model in each jurisdiction. If there is not a good fit, then the model needs to be modified, either by changing the location of some decision points or by adding others. For example, the model may need to be changed for a jurisdiction if diversion only occurs after a juvenile has been found guilty / delinquent, or if probation can be ordered without a finding of delinquency. Or an additional decision point may need to be added if it is viewed as an important decision stage in the local justice system and there is reliable data consistently available to use in calculation of relative rates.

   Note that in many instances represented in Figure 1 there are double-headed arrows between the stages – for example between court referrals and diversion – this is intended to indicate that some cases are indeed returned from diversion to the court process, due to violation of conditions or other reasons. However the important feature is that the total number of diversions is counted – both those resulting in an exit from the system and those resulting in return to further processing.

2. **Gather the definitions for each data element.** This means gathering both the legal definitions for the action (e.g., the definition of an arrest for the jurisdiction, the definition of diversion, probation, etc.) and the operational definition for that stage (what action actually creates the data to count the number of instances of diversion, an arrest, a sentence to probation?).

   Given the variety of forms of juvenile justice data collected across the nation, two issues in particular need to be addressed. For each of these there is a preferred data type based on the Congressional mandate to address total contact of youth with the juvenile justice system. First, for those data elements that involve 'holding' a youth in a particular status, the preferred information is that which identifies the total number of youth in that status during the year, not just the number of new entries into that status during the year. For example, the preferred data element would be the total number of youth subject to confinement during the year rather than a count of the new admissions to secure confinement over the year. Likewise, there is the issue of whether data elements reflect 'duplicated' or 'unduplicated' counts. For example, if a youth is arrested four times during a year, does this count as one youth arrested (unduplicated) or four arrests of a youth (duplicated), Again, given the Congressional mandate to address total contact with the juvenile justice system, the preferred type of data is the duplicated count, one which will reflect the total number of youth contacts with the justice system.

3. **Determine the categories of race and ethnicity that are available for each data element**. This means not only determining what groups are counted, but what the source is for that classification (self-identification, classification by officials, records from other sources, etc.) This will also involve determining whether the classification is a single label for each youth, a set of possibilities (e.g., Hispanic and Asian) or a 'check all that apply' format. When possible, determine whether the classification system can be converted to follow the US Census Bureau classification as referenced in the OJJDP regulations.

4. **Gather the counts of youth in each of the various stages (A-J) classified in each race/ethnicity category and enter that information into the data entry module of the data tool (shown below)**. Note that the data tool will calculate whether a specific group meets the 1 percent rule at which point OJJDP requires that this group be examined separately. In this instance, it would not be necessary to examine DMC separately for Native American or other/mixed groups. Note also that the jurisdiction should be identified (State and County or other entity) and the dates for which the data is presented, along with the relevant age range for youth subject to the jurisdiction of the juvenile justice system (in this instance ages 10 through 17). The cells for entering this information, as well as the entry areas for the numeric data are highlighted in the data tool.

Data Entry Section

AREA REPORTED
State : Test State
County: Sample

Reporting Period **Jan / 2002** (Month/ Year)
through **Dec / 2002** (Month/ Year)

Block in Figure 1		Total Youth	White	Black or African-American	Hispanic or Latino	Asian	Native Hawaiian or other Pacific Islanders	American Indian or Alaska Native	Other/ Mixed	All Minorities
A	1. Population at risk (age **10** through **17**)	118,722	39,117	6,460	52,433	19,750		972		79,615
B	2. Juvenile Arrests	13,585	3,058	2,055	7,220	1,091		29	132	10,527
C	3. Refer to Juvenile Court									
D	4. Cases Diverted	306	113	28	136	19		0	10	193
E	5. Cases Involving Secure Detention	2,314	401	354	1,300	243		8	8	1,913
F	6. Cases Petitioned (Charges Filed)	5,859	1,000	901	3,113	523		16	36	4,589
G	7. Cases Resulting in Delinquent Findings	4,058	555	894	2,195	384		15	15	3,503
H	8. Cases resulting in Probation Placement	2,501	585	362	1,330	201		13	10	1,916
I	9. Cases Resulting in Confinement in Secure Juvenile Correctional Facilities	1,629	284	241	908	189		3	4	1,345
J	10. Cases Transferred to Adult Court	24		7	15					22
	Meets 1% rule?		**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	

5. **Determine what base numbers are available for calculating the rates.** In general in Figure 1, those numbers that we recommend for use as the base for a rate are in

rectangular boxes down the center of the figure. For example, in calculating the rate of secure confinement (circle I in Figure 1), it is suggested that the appropriate base be the boxed count of the number of delinquent (guilty) findings. In the situation in which that number is not available, it is recommended that the preceding boxed number be used, in this example the number of petitions (charges) filed. The data tool will automatically select the preceding base for the rate if the preferred base is unavailable (all zeroes)

6. **After entering (and verifying) all data in the data entry section, then begin to examine the results**. The data tool results are organized by minority group, with each group being compared to the rates for white youth. Corresponding tabs at the bottom of the worksheet present the data for each group. The following table presents the analysis for the sample County for the comparison of Black or African-American youth and White youth.

1. AREA REPORTED — **2. MINORITY GROUP: Black or African-American**

State : Test State

County: Sample

Reporting Period Jan / 2002 (Month / Year) through Dec / 2002 (Month / Year)

Data Items	-A- Total Number of White Youth	-B- Rate of Occurrence - White Youth	-C- Total Number of Minority Youth	-D- Rate of Occurrence - Minority Youth	-E- Relative Rate Index (Column D / Column B)	-F- Statistically Significant? (p< .05)
1. Population at risk (age 10 through 17)	39,117		6,460			
2. Juvenile Arrests	3,058	78.18	2,055	318.11	**4.07**	Yes
3. Refer to Juvenile Court	-	---	-	---	---	
4. Cases Diverted	113	3.70	28	1.36	**0.37**	Yes
5. Cases Involving Secure Detention	401	13.11	354	17.23	**1.31**	Yes
6. Cases Petitioned (Charges Filed)	1,000	32.70	901	43.84	**1.34**	Yes
7. Cases Resulting in Delinquent Findings	555	55.50	894	99.22	**1.79**	Yes
8. Cases resulting in Probation Placement	585	105.41	362	40.49	**0.38**	Yes
9. Cases Resulting in Confinement in Secure Juvenile Correctional Facilities	284	51.17	241	26.96	**0.53**	Yes
10. Cases Transferred to Adult Court	-	---	7	0.78	---	Yes

Definitions of rates:

Recommended Base	**Base Used**
2. Juveniles Arrested - rate per 1000 population	per 1000 youth
3. Referrals to Juvenile Court - rate per 1000 population	per 1000 youth
4. Juveniles Diverted before adjudication - rate per 100 referrals	per 100 arrests
5. Juveniles Detained (by type of detention) - rate per 100 referrals	per 100 arrests
6. Juveniles Petitioned - rate per 100 referrals	per 100 arrests
7. Juveniles found to be delinquent - rate per 100 youth petitioned (charged)	per 100 youth petitioned
8. Juveniles placed on probation - rate per 100 youth found delinquent	per 100 youth found delinquent
9. Juveniles confined in secure correctional facilities - rate per 100 youth found delinquent	per 100 youth found delinquent
10. Juveniles transferred to adult court - rate per 100 youth charged/petitioned	per 100 youth petitioned

7. **Examine the index values and identify those that are significant.** The analysis table shows the total numbers of youth in each stage, the rate of youth (e.g., the rate of arrests is 78.18 per one thousand (1,000) youth for white youth and 318.11 per one thousand (1,000) youth for Black or African-American youth), the relative rate index (318.11 divided by 78.18 = 4.07) and an indication whether that index is statistically significant (i.e., could it have occurred by a random process). An index value of 1.00 would indicate that the rates were essentially the same. In this instance the index is so far from 1.00 that it is unlikely to have occurred as a random process, so it is indicated to be statistically significant.

8. **Identify the numerical base used for each rate calculation, understanding which stages of the Juvenile Justice System (Figure 1) are being used to calculate those rates.** Also notable is that although the preferred rate for diversion, detention and petition is a rate per hundred court referrals, in this instance we don't have a total count of court referrals, all we have is the number of arrests. The rates for diversion, detention and petition are therefore calculated per 100 arrests, the box (labeled B) preceding the number of petitions (labeled C) in Figure 1.

9. **Identify situations in which an index value could be not calculated.** Also notable in this instance is that since there were no White youth transferred to adult court, the rate of adult court transfer is zero, meaning that it is impossible to calculate a relative rate index for that stage (this would require division by zero, mathematically impossible.)

10. **Examine the comparative experiences of youth from multiple minority groups to determine if there are systematic patterns affecting multiple groups.** In the summary table displayed below (and in the tab noted as 'Summary' in the data worksheet) the Relative Risk Index values are presented for all minority groups. Also included in this table is the notation from the data entry summary about whether the experiences of each group meet the 1% threshold for analysis. Groups not meeting this threshold should be analyzed with extreme caution since the number of cases

	Relative Rate Index Compared with White Juveniles						
	Black or African-American	Hispanic or Latino	Asian	Native Hawaiian or other	American Indian or Alaska	Other/ Mixed	All Minorities
2. Juvenile Arrests	4.07	1.76	0.71	---	0.38	#VALUE!	1.69
3. Refer to Juvenile Court	---	---	---	---	---	---	---
4. Cases Diverted	0.37	0.51	0.47	---	---	2.05	0.50
5. Cases Involving Secure Detention	1.31	1.37	1.70	---	2.10	0.46	1.39
6. Cases Petitioned	1.34	1.32	1.47	---	1.69	0.83	1.33
7. Cases Resulting in Delinquent Findings	1.79	1.27	1.32	---	1.69	0.75	1.38
8. Cases resulting in Probation Placement	0.38	0.57	0.50	---	0.82	0.02	3.28
9. Cases Resulting in Confinement in Secure Juvenile Correctional Facilities	0.53	0.81	0.96	---	0.39	0.52	0.75
10. Cases Transferred to Adult Court	---	---	---	---	---	---	---
Group meets 1% threshold?	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	

may be so small that the numbers are the product of individual cases rather than systematic patterns.

11. **Examine the population based relative rate indexes to examine the cumulative effects of justice system processing**. Each of the preceding rates and relative rate index calculations was based on examining the change from one stage of the justice system, using what we have termed as the decision specific Relative Rate Index. An alternative approach which shows the cumulative effect of multiple decisions is the population based relative rate index, displayed in the table below. In this case, the rate for each decision point is calculated as the rate per 1,000 youth in the population category being examined, and then the ratio of those rates is calculated. For example, in this instance, the rate of delinquency findings (guilty verdicts) per 1,000 youth is 9.75 times higher for Black or African American youth than for white youth, and 2.95 times higher for Hispanic or Latino youth than white youth. While that index value for Black or African-American youth stands out as the highest in the table, recall that it is a cumulative index, so it reflects not only differences in the rate of guilty verdicts, but all of the differences that precede the verdict.

Population Based Relative Rates

	White	Black or African-American	Hispanic or Latino	Asian	Native Hawaiian or other Pacific Islanders	American Indian or Alaska Native	Other/ Mixed	All Minorities
2. Juvenile Arrests	1.00	4.07	1.76	0.71	--	0.38	–	1.69
3. Refer to Juvenile Court	–	--	--	–	--	--	–	--
4. Cases Diverted	1.00	1.50	0.90	0.33	--	--	–	0.84
5. Cases Involving Secure Detention	1.00	5.35	2.42	1.20	--	0.80	–	2.34
6. Cases Petitioned	1.00	5.46	2.32	1.04	--	0.64	–	2.25
7. Cases Resulting in Delinquent Findings	1.00	9.75	2.95	1.37	--	1.09	–	3.10
8. Cases resulting in Probation Placement	1.00	3.75	1.70	0.68	--	0.89	–	1.61
9. Cases Resulting in Confinement in Secure Juvenile Correctional Facilities	1.00	5.14	2.39	1.32	--	0.43	–	2.33
10. Cases Transferred to Adult Court	–	--	--	–	--	--	–	--
Group meets 1% threshold?		**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	